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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 09/822,709 | 03/30/2001 | Ananthan K. Pillai | EMC-005PUS | 8052 |

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EXAMINER

NAMAZI, MEHDI

| ART UNIT | PAPER NUMBER |
|----------|--------------|
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2188

DATE MAILED: 03/30/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

324

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|------------------------------|------------------------|---------------------|--|
| Office Action Summary | Application No. | Applicant(s) | |
| | 09/822,709 | PILLAI ET AL. | |
| | Examiner | Art Unit | |
| | Mehdi Namazi | 2188 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 14 January 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-17 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 17 is/are allowed.
- 6) ☒ Claim(s) 1-9 and 11-16 is/are rejected.
- 7) ☒ Claim(s) 10 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input checked="" type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. <u>5</u> . |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____. | 6) <input type="checkbox"/> Other: _____. |

DETAILED ACTION

1. This office action is in response to amendment filed January 14, 2004.
2. Claims 10, and 13 have been amended. New claim 17 has been added.

Drawings

3. The drawings are objected to under 37 CFR 1.83(a) because they fail to show **collapsed extent processor, extent recording processor** as described in the specification. Any structural detail that is essential for a proper understanding of the disclosed invention should be shown in the drawing. MPEP § 608.02(d). A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Response to Arguments

4. Applicant's arguments filed January 14, 2004 have been fully considered but they are not persuasive.
 - a). In response to applicant's arguments on page 7 with regard to "extent" and "collapsed extent", examiner would like to refer to page 2, lines 20-21 of specification "the sections of the disks are referred to as "extents" (i.e. an extent corresponds to a small portion or piece of a disk)" or page 4, lines 28-29, "it is possible to treat each extent which is part of the stripe pattern on the disk as one large extent referred to herein as a collapsed extent" also page 5, lines 25-26 of specification "Each collapsed extent is based on a plurality of actual extents which define a file or block of data.",

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therefore, base on this definition, Cabrera's extent reads on the claim because:

according to applicant's definition of extent (extent corresponds to a small portion of the disk), and each extent in Cabrera's reference points out to a small part of disk, and with regard to collapsed extent, applicant's states that "Each collapsed extent is based on a plurality of actual extents which define a file or block of data each", therefore, plurality of extents in Cabrera's reference is consider as one "collapsed extent".

b). In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., logical volume management software, efficiency) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

c). In response to applicant's arguments that in West reference there is no mention of extents or volume managers, neither describes nor suggests collapsing of extents for efficiency or any other purpose. Examiner respectfully disagrees with applicant's arguments, because West's reference has been used for data movement as a secondary reference, also none of the claims talks about volume managers or efficiency.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

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A person shall be entitled to a patent unless –

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000. Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

6. Claims 1, 6, and 12, are rejected under 35 U.S.C. 102(e) as being anticipated by Cabrera et al. (Cabrera) (U.S. Patent No. 6,553,387).

As per claims 1, 6, and 12 Cabrera teaches a method of backing up and restoring data in a computer system, the method comprising:
defining a logical backup object (col. 1, lines 61);
specifying one or more collapsed extents (col. 8, lines 25-27, fig. 2, disks 2, and 3) (where stripe or collapsed extents is comprising of plurality of extents); and
recording details of the collapsed extents (col. 8, lines 33-38).

As per claim 12, Cabrera further teaches a collapsed extent processor for specifying collapsed extents (fig. 1, element 21); an extent processor for recording details of collapsed extents (fig. 1, element 21, the processor which do

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recording for extents, is responsible for collapsed extents, since collapsed extent is made of plurality of extents).

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 2-5, 7-11, and 13-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cabrera et al. (Cabrera) (U.S. Patent No. 6,553,387), and further in view of West et al. (U.S. Patent No. 6,446,175) (West).

As per claims 2, and 11, Cabrera teaches the claimed invention as detailed above in previous paragraph, but fails to teach specifying starting data movement between a host and the backup and restore system, and monitoring data movement.

West teaches storing and retrieving data to and from a tape backup system that is located remotely from primary host system (abstract).

Therefore, it would have been obvious to one ordinary skill in the art to modify the work of Cabrera, because west teaches data movement by backing up data to backup system, in order to safeguard corporate data, hardware failure, and industrial sabotage(col. 1, lines 21-33).

As per claim 3, West teaches receiving a completed signal, in response to the completed signal, halting the monitoring of the data movement (any control signal for

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backing up data follows by signals for which the backup or restoring data has been completed, col. 4, lines 5 – 9).

As per claim 4, West, and Cabrera teach repeatedly defining a logical backup Object, specifying extents, starting data movement, and recording details of the specified extents and monitoring data movement from a first storage unit to a second storage unit until all data are transferred to the second storage unit (west, col. 4, lines 3-13, Cabrera, col. 8, lines 10-13).

As per claims 5, 8, and 15 West teaches a method of restoring data from a backup and restore system to a host, the method comprising: creating empty objects on host to restore into (col. 4, lines 3-13), discovering the extents of the empty objects (col. 4, lines 14-17), reading the extends of the backup objects (col. 4, lines 17-22).

As per claims 5, 8, and 15 West teaches the claimed invention as detailed above in previous paragraph, but fails to teach specifying a mapping from backup extents to restore extents wherein at least one of the extents corresponds to a collapsed extent.

Cabrera teaches a storage system with plurality of disks, wherein each disk comprises of one or plurality of volume (each volume consists of single physical extents, however, the volume may occupy an entire disk or only a portion of the disk, and stripe without the volume consists of at least two extents)(col. 8, lines 12-14, 21-30), and mirroring the volume consists of at least two extents. The extents fully replicate all data (col. 8, lines 33-35).

Therefore, it would have been obvious to one ordinary skill in the art to modify the work of West, because Cabrera teaches mirroring the volume consists of at least

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two extents, where extents fully replicate all data, and mirroring two, three, or more disks of equal size will yield a volume with size equal to that of a single extent, in order to avoid losing all data, because loss of one disk does not cause any loss of data since there is at least one disk remaining (col. 8, lines 37-39).

As per claim 7, Cabrera teaches collapsing the extents comprises:
Identifying a pattern in the actual extents discovered on the primary storage system, and generating a representation of files specified by the actual extents which is more compact than the representation provided by the actual extents and defining tile representation as a collapsed extent (col. 8, lines 10-13).

As per claim 9, and 14 Cabrera teaches specifying a mapping comprises specifying pairs of extents, which identify the backup extents and the restore extents (col. 8, lines 5-13).

As per claims 13, and 16, west teaches means for logically restoring a logical element from segment of storage on the primary storage system (col. 16, lines 31-44).

Allowable Subject Matter

9. Claim 10 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claim 17 is allowed.

Conclusion

10. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Mehdi Namazi whose telephone number is 703-306-2758. The examiner can normally be reached on Monday-Friday 8:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mano Padmanabhan can be reached on 703-306-2903. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Mehdi Namazi
Examiner
Art Unit 2188

March 18, 2004

Mano Padmanabhan
3/25/04

MANO PADMANABHAN
SUPERVISORY PATENT EXAMINER
TC21W